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CLAIMS

What is claimed is:

- Claim 1. An agrochemical composition comprising an agrochemical active
5 ingredient and an amine or a salt thereof or a short-chain alkyl quaternary ammonium salt adjuvant.
- Claim 2. The agrochemical composition of claim 1 wherein said agrochemical active ingredient is selected from the group consisting of paraquat, diquat, glyphosate, fomesafen, thiamethoxam, mesotrione, trifloxysulfuron or mixtures
10 thereof.
- Claim 3. The agrochemical composition of claim 2 wherein said agrochemical active ingredient is paraquat or diquat or mixtures thereof.
- Claim 4. The agrochemical composition of claim 3 wherein the concentration of the paraquat or diquat or mixtures thereof is greater than 100 g/l.
- 15 Claim 5. The agrochemical composition of claim 1 wherein said amine or a salt thereof or short-chain alkyl quaternary alkyl ammonium salt adjuvant is selected from the group consisting of diethylamine or a salt thereof, ethanolamine or a salt thereof, triethanolamine or a salt thereof, a tetrapropylammonium salt and a tetrabutylammonium salt.
- 20 Claim 6. The agrochemical composition of claim 1 wherein the ratio by weight of the amine or a salt thereof or a short-chain alkyl quaternary ammonium salt adjuvant to the agrochemical active ingredient is preferably from 1:20 to 10:1.
- Claim 7. The agrochemical composition of claim 1 wherein the ratio by weight of the amine or a salt thereof or a short-chain alkyl quaternary ammonium salt
25 adjuvant to the agrochemical active ingredient is preferably from 1:10 to 1:2.
- Claim 8. The agrochemical composition of claim 4 which further comprises from 10 to 400 grams per litre, of an electrolyte purgative.
- Claim 9. The agrochemical composition of claim 8 wherein said electrolyte purgative is magnesium sulphate.
- 30 Claim 10. The agrochemical composition of claim 8 which further comprises an alginate which is a pH-triggered gelling agent such that a pH-triggered gel effect takes place at the acid pH of human gastric juice.
- Claim 11. The agrochemical composition of claim 9 which comprises from 10 to 100 grams per litre of magnesium sulphate as an electrolyte purgative.
- 35 Claim 12. The agrochemical composition of claim 1 which further comprises a second adjuvant.

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Claim 13. The agrochemical composition of claim 12 wherein said second adjuvant is a surfactant.

Claim 14. The agrochemical composition of claim 13 wherein said surfactant is selected from the group consisting of alkyl polyglycosides, betaines, alkylethoxy phosphates and salts thereof, alcohol ether carboxylic acids and salts thereof, alcohol ether sulphates and salts thereof.

Claim 15. The agrochemical composition of claim 12 wherein said second adjuvant is present at a lower concentration than said amine or short-chain alkyl quaternary ammonium salt adjuvant.

Claim 16. The agrochemical composition of claim 15 wherein said second adjuvant is selected from the group consisting of alcohol ethoxylates, amine ethoxylates, amine oxides and cationic surfactants.

Claim 17. The agrochemical composition of claim 16 wherein the ratio by weight of the amine adjuvant to the second adjuvant ranges from about 50:1 to 1:50.

Claim 18. The agrochemical composition of claim 17 wherein the ratio by weight of the amine adjuvant to the second adjuvant ranges from about 10:1 to 1:10.

Claim 19. The agrochemical composition of claim 16 wherein the ratio by weight of the amine adjuvant to the second adjuvant ranges from about 1:1 down to 1:25.

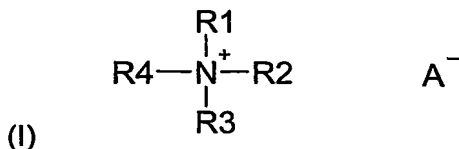
Claim 20. The agrochemical composition of claim 19 wherein the ratio by weight of the amine adjuvant to the second adjuvant ranges from about 1:4 to 1:15.

Claim 21. The agrochemical composition of claim 12 wherein the ratio by weight of the amine or a salt thereof or short-chain alkyl quaternary ammonium salt adjuvant and the second adjuvant to the agrochemical active ingredient is preferably from about 1:10 to 10:1.

Claim 22. The agrochemical composition of claim 21 wherein the ratio by weight of the amine or a salt thereof or short-chain alkyl quaternary ammonium salt adjuvant and the second adjuvant to the agrochemical active ingredient is preferably from about 1:5 to 10:1.

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Claim 23. A method of improving the activity of an agrochemical active ingredient which comprises incorporating in a composition containing the agrochemical active ingredient, an amine salt or short-chain alkyl quaternary ammonium salt of formula (I):



wherein R¹, R², R³ and R⁴ (which may be the same or different) are C₂ to C₄ alkyl, or R¹ is hydrogen and R₂, R₃ and R₄ (which may be the same or different) are C₂ to C₄ alkyl,

or R¹ and R² are hydrogen and R³ and R⁴ (which may be the same or different) are C₂ to C₄ alkyl,

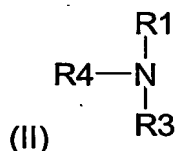
or R¹ and R² and R³ are hydrogen and R⁴ is C₂H₅OH,

or R¹ is hydrogen and R², R³ and R⁴ is C₂H₅OH,

and A⁻ is an agrochemically acceptable anion,

provided that R¹, R², R³ and R⁴ are not all ethyl and that when R¹ is hydrogen R₂, R₃ and R₄ are not all ethyl;

or an amine having the structure of formula (II):



wherein R¹, R² and R³ (which may be the same or different) are C₂ to C₄ alkyl,

wherein R¹ is hydrogen R², R³ (which may be the same or different) are C₂ to C₄ alkyl,

or R¹, R² are hydrogen and R³ is C₂H₅OH,

or R¹, R², and R³ is C₂H₅OH,

provided that R¹, R² and R³ are not all ethyl.

Claim 24. The agrochemical composition of claim 23 wherein said agrochemical active ingredient is selected from the group consisting of paraquat, diquat, glyphosate, fomesafen, thiamethoxam, mesotrione, trifloxysulfuron or mixtures thereof.

Claim 25. The agrochemical composition of claim 24 wherein said agrochemical active ingredient is paraquat or diquat or mixtures thereof.

Claim 26. The agrochemical composition of claim 25 wherein the concentration of the paraquat or diquat or mixtures thereof is greater than 100 g/l.

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Claim 27. The agrochemical composition of claim 23 wherein said amine or a salt thereof or short-chain alkyl quaternary ammonium salt adjuvant is selected from the group consisting of diethylamine or a salt thereof, ethanolamine or a salt thereof, triethanolamine or a salt thereof, a tetrapropylammonium salt and a tetrabutylammonium salt.

Claim 28. The agrochemical composition of claim 23 wherein the ratio by weight of the amine or a salt thereof or short-chain alkyl quaternary ammonium salt adjuvant to the agrochemical active ingredient is preferably from 1:20 to 10:1.

Claim 29. The agrochemical composition of claim 28 wherein the ratio by weight of the amine or a salt thereof or short-chain alkyl quaternary ammonium salt adjuvant to the agrochemical active ingredient is preferably from 1:10 to 1:2.

Claim 30. The agrochemical composition of claim 27 which further comprises from 10 to 400 grams per litre, of an electrolyte purgative.

Claim 31. The agrochemical composition of claim 30 wherein said electrolyte purgative is magnesium sulphate.

Claim 32. The agrochemical composition of claim 30 which further comprises an alginate which is a pH-triggered gelling agent such that a pH-triggered gel effect takes place at the acid pH of human gastric juice.

Claim 33. The agrochemical composition of claim 31 which comprises from 10 to 100 grams per litre of magnesium sulphate as an electrolyte purgative.

Claim 34. The agrochemical composition of claim 23 which further comprises a second adjuvant.

Claim 35. The agrochemical composition of claim 34 wherein said second adjuvant is a surfactant.

Claim 36. The agrochemical composition of claim 35 wherein said surfactant is selected from the group consisting of alkyl polyglycosides, betaines, alkylethoxy phosphates and salts thereof, alcohol ether carboxylic acids and salts thereof, alcohol ether sulphates and salts thereof.

Claim 37. The agrochemical composition of claim 34 wherein said second adjuvant is present at a lower concentration than said amine or a salt thereof or short-chain alkyl quaternary ammonium salt adjuvant.

Claim 38. The agrochemical composition of claim 37 wherein said second adjuvant is selected from the group consisting of alcohol ethoxylates, amine ethoxylates, amine oxides and cationic surfactants.

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Claim 39. The agrochemical composition of claim 37 wherein the ratio by weight of the amine or a salt thereof or short-chain alkyl quaternary ammonium salt adjuvant to the second adjuvant ranges from about 50:1 to 1:50.

5 Claim 40. The agrochemical composition of claim 39 wherein the ratio by weight of the amine or a salt thereof or short-chain alkyl quaternary ammonium salt adjuvant to the second adjuvant ranges from about 10:1 to 1:10.

Claim 41. The agrochemical composition of claim 37 wherein the ratio by weight of the amine or a salt thereof or short-chain alkyl quaternary ammonium salt adjuvant to the second adjuvant ranges from about 1:1 to 1:25.

10 Claim 42. The agrochemical composition of claim 37 wherein the ratio by weight of the amine or a salt thereof or short-chain alkyl quaternary ammonium salt adjuvant to the second adjuvant ranges from about 1:4 to 1:15.

Claim 43. The agrochemical composition of claim 34 wherein the ratio by weight of the amine or a salt thereof or short-chain alkyl quaternary ammonium salt adjuvant
15 and the second adjuvant to the agrochemical active ingredient is preferably from about 1:10 to 10:1.

Claim 44. The agrochemical composition of claim 43 wherein the ratio by weight of the amine or a salt thereof or short-chain alkyl quaternary ammonium salt adjuvant and the second adjuvant to the agrochemical active ingredient is preferably from
20 about 1:5 to 10:1.

AMENDED CLAIMS

**[Received by the International Bureau on 09 May 2005 (09.05.2005):
original claims 1-44 replaced by amended claims 1-44; (8 pages)]**

- Claim 1. An agrochemical composition comprising an agrochemical active ingredient and an amine or a salt thereof or a C₂-C₄ short-chain alkyl quaternary ammonium salt adjuvant.
- Claim 2. The agrochemical composition of claim 1 wherein said agrochemical active ingredient is selected from the group consisting of paraquat, diquat, glyphosate, fomesafen, thiamethoxam, mesotrione, trifloxysulfuron or mixtures thereof.
- Claim 3. The agrochemical composition of claim 2 wherein said agrochemical active ingredient is paraquat or diquat or mixtures thereof.
- Claim 4. The agrochemical composition of claim 3 wherein the concentration of the paraquat or diquat or mixtures thereof is greater than 100 g/l.
- Claim 5. The agrochemical composition of claim 1 wherein said amine or a salt thereof or C₂-C₄ short-chain alkyl quaternary alkyl ammonium salt adjuvant is selected from the group consisting of diethylamine or a salt thereof, ethanolamine or a salt thereof, triethanolamine or a salt thereof, a tetrapropylammonium salt and a tetrabutylammonium salt.
- Claim 6. The agrochemical composition of claim 1 wherein the ratio by weight of the amine or a salt thereof or a C₂-C₄ short-chain alkyl quaternary ammonium salt adjuvant to the agrochemical active ingredient is from 1:20 to 10:1.
- Claim 7. The agrochemical composition of claim 1 wherein the ratio by weight of the amine or a salt thereof or a C₂-C₄ short-chain alkyl quaternary ammonium salt adjuvant to the agrochemical active ingredient is from 1:10 to 1:2.
- Claim 8. The agrochemical composition of claim 4 which further comprises from 10 to 400 grams per litre, of an electrolyte purgative.
- Claim 9. The agrochemical composition of claim 8 wherein said electrolyte purgative is magnesium sulphate.
- Claim 10. The agrochemical composition of claim 8 which further comprises an alginate which is a pH-triggered gelling agent such that a pH-triggered gel effect takes place at the acid pH of human gastric juice.

Claim 11. The agrochemical composition of claim 9 which comprises from 10 to 100 grams per litre of magnesium sulphate as an electrolyte purgative.

Claim 12. The agrochemical composition of claim 1 which further comprises a second adjuvant.

Claim 13. The agrochemical composition of claim 12 wherein said second adjuvant is a surfactant.

Claim 14. The agrochemical composition of claim 13 wherein said surfactant is selected from the group consisting of alkyl polyglycosides, betaines, alkylethoxy phosphates and salts thereof, alcohol ether carboxylic acids and salts thereof, alcohol ether sulphates and salts thereof.

Claim 15. The agrochemical composition of claim 12 wherein said second adjuvant is present at a lower concentration than said amine or C₂-C₄ short-chain alkyl quaternary ammonium salt adjuvant.

Claim 16. The agrochemical composition of claim 15 wherein said second adjuvant is selected from the group consisting of alcohol ethoxylates, amine ethoxylates, amine oxides and cationic surfactants.

Claim 17. The agrochemical composition of claim 16 wherein the ratio by weight of the amine adjuvant to the second adjuvant ranges from 50:1 to 1:50.

Claim 18. The agrochemical composition of claim 17 wherein the ratio by weight of the amine adjuvant to the second adjuvant ranges from 10:1 to 1:10.

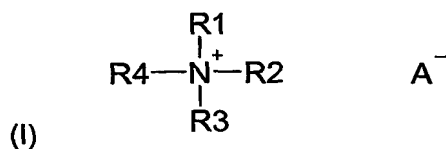
Claim 19. The agrochemical composition of claim 16 wherein the ratio by weight of the amine adjuvant to the second adjuvant ranges from 1:1 down to 1:25.

Claim 20. The agrochemical composition of claim 19 wherein the ratio by weight of the amine adjuvant to the second adjuvant ranges from 1:4 to 1:15.

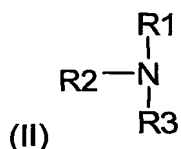
Claim 21. The agrochemical composition of claim 12 wherein the ratio by weight of the amine or a salt thereof or C₂-C₄ short-chain alkyl quaternary ammonium salt adjuvant and the second adjuvant to the agrochemical active ingredient is from 1:10 to 10:1.

Claim 22. The agrochemical composition of claim 21 wherein the ratio by weight of the amine or a salt thereof or C₂-C₄ short-chain alkyl quaternary ammonium salt adjuvant and the second adjuvant to the agrochemical active ingredient is from 1:5 to 10:1.

Claim 23. A method of improving the activity of an agrochemical active ingredient which comprises incorporating in a composition containing the agrochemical active ingredient, an amine salt or C₂-C₄ short-chain alkyl quaternary ammonium salt of formula (I):



wherein R¹, R², R³ and R⁴ (which may be the same or different) are C₂ to C₄ alkyl, or R¹ is hydrogen and R₂, R₃ and R₄ (which may be the same or different) are C₂ to C₄ alkyl, or R¹ and R² are hydrogen and R³ and R⁴ (which may be the same or different) are C₂ to C₄ alkyl, or R¹ and R² and R³ are hydrogen and R⁴ is C₂H₅OH, or R¹ is hydrogen and R², R³ and R⁴ is C₂H₅OH, and A⁻ is an agrochemically acceptable anion, provided that R¹, R², R³ and R⁴ are not all ethyl and that when R¹ is hydrogen R₂, R₃ and R₄ are not all ethyl; or an amine having the structure of formula (II):



wherein R¹, R² and R³ (which may be the same or different) are C₂ to C₄ alkyl, wherein R¹ is hydrogen R², R³ (which may be the same or different) are C₂ to C₄ alkyl, or R¹, R² are hydrogen and R³ is C₂H₅OH, or R¹, R², and R³ is C₂H₅OH, provided that R¹, R² and R³ are not all ethyl.

Claim 24. The method of claim 23 wherein said agrochemical active ingredient is selected from the group consisting of paraquat, diquat, glyphosate, fomesafen, thiamethoxam, mesotrione, trifloxysulfuron or mixtures thereof.

Claim 25. The method of claim 24 wherein said agrochemical active ingredient is paraquat or diquat or mixtures thereof.

Claim 26. The method of claim 25 wherein the concentration of the paraquat or diquat or mixtures thereof is greater than 100 g/l.

Claim 27. The method of claim 23 wherein said amine or a salt thereof or C₂-C₄ short-chain alkyl quaternary ammonium salt adjuvant is selected from the group consisting of diethylamine or a salt thereof, ethanolamine or a salt thereof, triethanolamine or a salt thereof, a tetrapropylammonium salt and a tetrabutylammonium salt.

Claim 28. The method of claim 23 wherein the ratio by weight of the amine or a salt thereof or C₂-C₄ short-chain alkyl quaternary ammonium salt adjuvant to the agrochemical active ingredient is from 1:20 to 10:1.

Claim 29. The method of claim 28 wherein the ratio by weight of the amine or a salt thereof or C₂-C₄ short-chain alkyl quaternary ammonium salt adjuvant to the agrochemical active ingredient is from 1:10 to 1:2.

Claim 30. The method of claim 27 which further comprises from 10 to 400 grams per litre, of an electrolyte purgative.

Claim 31. The method of claim 30 wherein said electrolyte purgative is magnesium sulphate.

Claim 32. The method of claim 30 which further comprises an alginate which is a pH-triggered gelling agent such that a pH-triggered gel effect takes place at the acid pH of human gastric juice.

Claim 33. The method of claim 31 which comprises from 10 to 100 grams per litre of magnesium sulphate as an electrolyte purgative.

Claim 34. The method of claim 23 which further comprises a second adjuvant.

Claim 35. The method of claim 34 wherein said second adjuvant is a surfactant.

Claim 36. The method of claim 35 wherein said surfactant is selected from the group consisting of alkyl polyglycosides, betaines, alkylethoxy phosphates and salts thereof, alcohol ether carboxylic acids and salts thereof, alcohol ether sulphates and salts thereof.

Claim 37. The method of claim 34 wherein said second adjuvant is present at a lower concentration than said amine or a salt thereof or C₂-C₄ short-chain alkyl quaternary ammonium salt adjuvant.

Claim 38. The method of claim 37 wherein said second adjuvant is selected from the group consisting of alcohol ethoxylates, amine ethoxylates, amine oxides and cationic surfactants.

Claim 39. The method of claim 37 wherein the ratio by weight of the amine or a salt thereof or C₂-C₄ short-chain alkyl quaternary ammonium salt adjuvant to the second adjuvant ranges from 50:1 to 1:50.

Claim 40. The method of claim 39 wherein the ratio by weight of the amine or a salt thereof or C₂-C₄ short-chain alkyl quaternary ammonium salt adjuvant to the second adjuvant ranges from 10:1 to 1:10.

Claim 41. The method of claim 37 wherein the ratio by weight of the amine or a salt thereof or C₂-C₄ short-chain alkyl quaternary ammonium salt adjuvant to the second adjuvant ranges from 1:1 to 1:25.

Claim 42. The method of claim 37 wherein the ratio by weight of the amine or a salt thereof or C₂-C₄ short-chain alkyl quaternary ammonium salt adjuvant to the second adjuvant ranges from 1:4 to 1:15.

Claim 43. The method of claim 34 wherein the ratio by weight of the amine or a salt thereof or C₂-C₄ short-chain alkyl quaternary ammonium salt adjuvant and the second adjuvant to the agrochemical active ingredient is from 1:10 to 10:1.

Claim 44. The method of claim 43 wherein the ratio by weight of the amine or a salt thereof or C₂-C₄ short-chain alkyl quaternary ammonium salt adjuvant and the second adjuvant to the agrochemical active ingredient is from 1:5 to 10:1.